IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	
Hideki IWATA et al.	:	
Serial No. 10/646,208	:	Group Art Unit: 1700
Filed: August 22, 2003	:	Examiner: V. Ronesi
For: SLIDING COMPOSITION AND SLIDING MEMBER	:	

D E C L A R A T I O N

Commissioner for Patents
Alexandria UA 22313-1450

Sir:

I, Hideki IWATA, declare that I am one of the co-inventors of the above-identified application and familiar with the prosecution history of the present application.

I declare that I have read and understand the official action dated June 16, 2006, issued against the above-identified application and also the references cited in the official action.

I declare that I have carried out the following experiments in order to demonstrate that unexpected superiority of the present invention over the prior art.

· Experiment 1

The same procedure as in inventive sliding member (1) shown in Table 1 (page 10) of the present specification was repeated to prepare and evaluate the sliding member.

· Experiment 1′

The same procedure as in Experiment 1 above was repeated except that PTFE (2) (Lublon L-2 (molecular weight: 600,000 or less, average particle size: 2 μm, manufactured by Daikin Industries, Ltd.) was used in place of PTFE (1) (Teflon Fine Powder 6-J, molecular weight: 3,000,000 or more, average particle size: 470 μm, manufactured by Mitsui Dupont Fluorochemicals Co., Ltd.) to prepare and evaluate the sliding member.

· Experiment 2

The same procedure as in inventive sliding member (2) shown in Table 1 (page 10) of the present specification was repeated to prepare and evaluate the sliding member.

· Experiment 2′

The same procedure as in Experiment 2 above was repeated except that PTFE (2) was used in place of PTFE (1) to prepare and evaluate the sliding member.

· Experiment 3

The same procedure as in inventive sliding member (3) shown in Table 1 (page 10) of the present specification was repeated to prepare and evaluate the sliding member.

· Experiment 3′

The same procedure as in Experiment 3 above was repeated except that PTFE (2) was used in place of PTFE (1) to prepare and evaluate the sliding member.

The results are shown in Table I below.

Table I

	Experiment No.	Composition (vol%)	Conditions 1		Conditions 2	
			Coefficient of friction	depth of wear	Coefficient of friction	depth of wear
	1	PF resin + 20 PTFE (1) + 10 bismuth	0.14	11 μm	0.10	23 μm
	1'	PF resin + 20 PTFE (2) + 10 bismuth	0.15	21 μm	0.14	37 μm
	2	PF resin + 20 PTFE (1) + 10 barium sulfate	0.16	15 μm	0.11	30 μm
	2'	PF resin + 20 PTFE (2) + 10 barium sulfate	0.18	24 μm	0.17	43 μm
	3	PF resin + 20 PTFE (1) + 5 bismuth + 5 calcium carbonate	0.15	14 μm	0.11	28 μm
	3'	PF resin + 20 PTFE (2) + 5 bismuth + 5 calcium carbonate	0.17	19 μm	0.13	33 μm

• Conclusion

As shown in the above table, the sliding members of Experiments 1, 2 and 3 are much smaller than the sliding members of Experiments 1′, 2′ and 3′ in the depth of wear.

The sliding members of Experiments 1, 2 and 3 use PTFE (1), which has a molecular weight and an average particle size within the presently claimed range, i.e., 3,000,000 or more and 470 μm while the sliding members of Experiments 1′, 2′ and 3′ use PTFE (2), which has a molecular weight and an average particle size not within the presently claimed range, i.e., 600,000 or less and 2μm. Thus, the use of PTFE having a molecular weight and an average particle size specified in the present application attains an excellent wear resistance.

Such superiority of the use of PTFE having a high molecular weight is not disclosed or suggested by any of the prior art references.

Therefore, the present invention attains unexpected superiority to the prior art, and hence is patentable thereover.

The undersigned declarant declares further that all statements made herein of own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 18th day of September 2006.

Hideki Iwata

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